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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,799	02/11/2002	Hiroaki Mihara	03500.012897.1	4717

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EXAMINER

STEPHENS, JUANITA DIONNE

ART UNIT PAPER NUMBER

2853

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/071,799

Applicant(s)

MIHARA ET AL.

Examiner

Juanita D. Stephens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Preliminary Amendment filed 2/11/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 19-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22, 23, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 19-21, 24 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/128,538.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

Acknowledgement is made of Preliminary Amendment filed 2/11/02.

#### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/128,538, filed on 8/4/98. ***Specification***
2. The abstract of the disclosure is objected to because the abstract contains more than 150 words and more than 25 lines of text. Correction is required. See MPEP § 608.01(b).

#### ***Claim Objections***

3. Claims 19-21 are objected to because of the following informalities:  
  
In claim 19, lines 16-17 replace "the portion" with --a portion--, and "the movable range" with --a movable range--.  
  
In claim 20, line 15 replace "the portion" with --a portion--; line 16 replace "the movable range" with --a movable range--; line 17 replace "the inner stress" with --an inner stress--, "the function" with --a function", and line 18 replace "the releasable layer" with --a releasable layer--.  
  
In claim 21, line 15 replace "the portion" with --a portion--; line 16 replace "the movable range" with --a movable range--.  
  
Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 22, 23, 25, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Karz et al. (US 5,278,585).

Karz et al. discloses a liquid discharge head (Fig. 3), comprising: 1) a discharge port (nozzle) for discharging liquid, 2) a liquid flow path (channels 20) communicated with each of said discharge ports to supply liquid to each of said discharge port (col 3, lns 29-30), 3) a substrate (heater plate 28) provided with heat generating members (34) for creating a bubble in liquid (col 3, lns 16-17), 4) a cantilever/movable member (valve 40) arranged in said plural liquid flow paths, (col 3 lns 42-48) the movable member having a free end (distal end; Fig. 5) on said discharge port side to face said heat generating member, 5) said movable member being formed either one of silicon nitride, diamond, amorphous carbon hydride, and silicon oxide, and being incorporated on said substrate (col 4, lns 48-51), and 6) wherein said movable member is formed by silicon nitride with impurities being added thereto (col 4, lns 48-51). Karz inherently teaches said free end being positioned on the downstream of the area center of said heat generating member.

***Allowable Subject Matter***

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6. Claims 24 and 27 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The limitation of wherein said movable member is formed by a silicon nitride-multi-layered film with the composition being changed or impurities being added thereto. This invention solves the problem of precise alignment of each liquid flow path, because there is no need to position the movable member with the substrate. It is this limitation, which is not taught or suggested in the prior art, which makes the claims allowable over the prior art.

8. Claims 19-21 will be allowed after correction as identified in the "claim objection" section are made.

9. The following is a statement of reasons for the indication of allowable subject matter:

The combination of a movable member, a pedestal portion formed on said substrate for supporting said movable member, said movable member having property of being curved by heat, and the portion corresponding to the movable range being separated by heating from said substrate, recited in independent claim 19. This invention solves the problem of precise alignment of each liquid flow path, because there is no need to position the movable member with the substrate. It is this limitation,

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which is not taught or suggested in the prior art, which makes the claims allowable over the prior art.

The combination of a movable member, a pedestal portion formed on said substrate for supporting said movable member, the portion of said movable member corresponding to the movable range being separated from said substrate by means of the inner stress and the function of the releasable layer formed on said substrate, recited in independent claim 20. This invention solves the problem of precise alignment of each liquid flow path, because there is no need to position the movable member with the substrate. It is this limitation, which is not taught or suggested in the prior art, which makes the claims allowable over the prior art.

The combination of a movable member, a pedestal portion formed on said substrate for supporting said movable member, the portion of said movable member corresponding to the movable range being provided with a recessed part on the portion adjacent to said pedestal portion, recited in independent claim 21. This invention solves the problem of precise alignment of each liquid flow path, because there is no need to position the movable member with the substrate. It is this limitation, which is not taught or suggested in the prior art, which makes the claims allowable over the prior art.

#### **Contact Information**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (703) 308-1204. The examiner can normally be reached on Flex.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

0956.

A handwritten signature in black ink, appearing to read "Juanita Stephens". The signature is written in a cursive, flowing style with a large initial "J".

Juanita Stephens  
Patent Examiner  
2853  
(703) 308-1204  
March 23, 2003